

Diagnosing meteorological conditions associated with sprites and lightning with large Charge Moment Changes (CMC) over Oklahoma

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Abstract

Sprites are a category of Transient Luminous Events (TLEs) that occur in the upper atmosphere above the tops of Mesoscale Convective Systems (MCSs). They are commonly associated with lightning that produce large charge moment changes (CMCs). Synergistic use of satellite and radar-retrieved observations together with sounding data, forecasts, and lightning-detection networks allowed the diagnosis and analysis of the meteorological conditions associated with sprites as well as large-CMC lightning over Oklahoma.